

Challenges of Tobacco Use Behavior in Central Development Region of Nepal: Global Youth Tobacco Survey, Nepal

MR Pandey
RP Pathak

1. Summary:

Objectives: This report aims to describe the magnitude and extent of tobacco use as well as knowledge and attitudes of 8th, 9th and 10th grade students in Nepal regarding tobacco use, their exposure to environmental tobacco smoke (ETS) and cessation efforts, the extent to which they receive anti-tobacco instruction in schools and information from media and the extent of their exposure to pro-tobacco activities such as media/advertisement. It also describes the access and availability of tobacco products by the youth.

Method: This is a cross-sectional survey of students in grade 8-10, conducted in 49 secondary schools of Central Development Region (CDR) of Nepal in 2001. A two-stage cluster sample design was used to produce representative data for the region. At the first stage, schools were selected with probability proportional to enrollment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate. A pre-tested, modified Global Youth Tobacco Survey (GYTS) questionnaire was used. The school response rate was 98%; students response rate was 86% and the overall response rate was 84.1%.

Results:

Overall 16.3% of the students ever used tobacco product in any form (table 1). Percentage of current users of any form of tobacco product was 11.6% and the rate among boys was significantly higher (15.3%) than among girls (6.4%). The overall percentage of cigarette smoking was 4.1%. Majority, (77.7%) of the students were taught about the dangers of smoking, its effect as a part of lesson in the class (Table 2). Perhaps, as a consequence, a vast majority (76.8%) of the current smokers expressed their desire and also made an attempt (77.7%) to stop tobacco use (Table3).

A substantial proportion of non-smokers (44.7%) and current smokers (63.8%) were exposed to tobacco smoke from others outside their home in the past 7 days (Table 4). Boys were significantly highly exposed to secondhand smoke than girls. 72.9% never smokers and 59.7 % current smokers thought that the smoking should be banned from public places.

Similarly, the findings also suggested that the school students have unrestricted access to tobacco products. More than half (51.3%) of the current tobacco users purchased tobacco products in a store and 75% of them were not refused purchase because of their age.

44% of never tobacco users and 51.2% current tobacco users were exposed to tobacco advertisement in print media (Table 6b). A similar proportion of students were also exposed to pro-tobacco advertisements through TV, newspaper/magazine, social gatherings etc. Current smokers were more exposed to them. Thirty percent of current smokers even received free offer of cigarette or bidi or khaini gutka or panmasala from tobacco agents (Table 6a). Although, the tobacco users were more likely to get free gifts, 14.9% non-users also received such gifts.

The existence of wrong perception of school students about their smoking habits was also evident from the findings. More than one third (35.4%) never users and almost half (48.3%) current smokers thought that boys who smoke have more friends (Table 5a). Similarly, one-fifth (22.4%) never users and one-third (32.6%) current smokers thought that girls who smoke have more friends. About a similar proportion of students also thought that smoking makes them more attractive.

2. Introduction

Tobacco use is responsible for considerable number of morbidity and mortality in the world. It is one of the most important preventable risk factor of most non-communicable diseases. The tobacco smoke contains more than 4000 substances that are detrimental to health. Among these 4000 substances at least 43 are carcinogenic. At present, World Health Organization (WHO) estimates 1.1 billion smokers in the world today; the number is expected to rise to 1.64 billion by the year 2025. About 4.9 million people die each year from tobacco use. If the current trends continue, this figure will reach more than 10 million by the early 2030s, with over 70 percent of those deaths occurring in developing countries. Based on current smoking trends, tobacco will soon become the leading cause of death worldwide, causing more deaths than HIV/AIDS, maternal mortality, automobile accidents, homicide and suicide combined.

Given the top priority to the tobacco program, WHO Director General, established a Cabinet project, the Tobacco Free Initiative (TFI) in July 1998 to coordinate an improved global strategic response to tobacco as an important public health issue. The long term vision of global tobacco control is to reduce smoking prevalence and tobacco consumption in all countries and among all groups, and thereby reducing the burden of disease caused by tobacco in the world.

Tobacco use in Nepal

A study done in different ecological regions of Nepal indicated that prevalence of tobacco use in adults was 68.4% in rural Kathmandu, 37.0% in urban Kathmandu, 54.7% in Tarai region and 77.7% in mountain region¹. It was interesting to note that in the mountain region, the female smoking rate was 71.6%, which is one of the highest reported in the world. Another small cross-sectional community survey of 1157 young individuals aged 10-19 years, done in 1987 showed an overall prevalence of daily smokers to be 12.1%. This survey showed that major deterrent factors were parental attitudes and peer pressure against smoking in the school atmosphere². Recently conducted national survey on tobacco economics³ showed that smoking rate increases with age; among the 16-19 years old it was about 30%. It was unveiled that the household share of expenditure on tobacco product is more than 3.5%.

Another cross sectional survey of students of grade 4-9 was recently conducted in a private school of Kathmandu. 47% of the students were of the age group 13-15 years. In contrary to the findings from other studies, the prevalence of tobacco use in this particular study was quite high. Regular smokers (smoking at least one cigarette per day) was 7.8%. The percentage of students using tobacco in forms other than smoking was 42.4% (n=924, coverage rate 95%). However, this included the students using these products daily and occasionally as well as only during festivals. A substantial portion of the occasional smokers (57.2%) expressed their wish to quit smoking⁴.

The recently published Global Youth Tobacco Survey (GYTS) report on Tobacco Use among Youth: A Cross Country Comparison revealed that 186 million populations were estimated to be in the age group 13-15 out of the world population of 6.2 billion. The GYTS studies covers 140 countries around the world, including Nepal. Out of the 186 million, 34.8 million were estimated to be currently using some form of tobacco and 25.8 million were currently smoking cigarettes. The use of any form of tobacco by 13-15 year old students was found to be more than 10%. Current smokers in this age group was less than 10% around the world^{5,6}.

Nepal has very high prevalence rate of chronic obstructive lung disease (COLD) varying from 20-40% in persons above the age of twenty years. This was found to be significantly associated with tobacco smoking^{1,7}. Acute respiratory infection is the second biggest killer of infants and children in Nepal and positive correlation between tobacco smoking by parents and ARI in infants have been shown in a study conducted in Nepal⁸. Tobacco smoking has also been found to be associated with coronary artery disease in a hospital-based study in Nepal⁹. This disease is rapidly increasing in Nepal and South Asia and has been projected to reach epidemic proportion in the near future unless immediate primary prevention measures with special emphasis to anti tobacco campaign are taken.

3. Objectives

The GYTS is a school-based tobacco specific global survey, which focuses on adolescents of age 13-15 years and corresponding grade. It establishes the prevalence of tobacco use status of school going students in a country, assess knowledge, attitude and behavior related to tobacco use and exposure to environmental tobacco smoke (ETS) etc. It also assesses students' exposure to pro-tobacco and anti tobacco activities in a country. The objective of GYTS is two folds:

- To find out the magnitude and extent of tobacco use among school students with special focus to 13-15 years age group and to monitor the change over years.
- To assess and better understand the level of exposure to pro-tobacco and anti-tobacco activities and corresponding knowledge and attitudes of students regarding tobacco use so as to plan and implement effective anti-tobacco program in a country.

This report, like GYTS in other countries, will attempt to unveil the following issues related to tobacco use in Nepal:

- Determine the magnitude and extent of tobacco use by school students
- Assess students knowledge and attitude regarding tobacco use
- Find out the level of exposure of school students to pro-tobacco activities such as media / advertisement, access and availability
- Assess students' exposure to environmental tobacco smoke and cessation efforts
- Assessment of anti-tobacco instructional activities in school

4. Methodology:

Because of insurgency mainly in hilly and mountainous, western and eastern region of Nepal, it was decided to do the first stage of the survey in the central region for logistic reasons and convenience. This region includes the capital Kathmandu valley with most populated schools and students. After completing this, it was planned to do study in other parts of Nepal to get a more representative data.

4.1. Study design and sampling technique:

The GYTS is a cross-sectional survey of school students of grades 8 to 10 carried out in mid-2001. A two-stage cluster sample design was used to produce representative data for the central development region of Nepal. At the first stage, schools were selected with probability proportional to enrollment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate. For this purpose, the enrollment data of secondary school student of grades 8 to 10 corresponding to age 13 to 15 in the central development region (CDR) of Nepal was collected from the record of the Central Region Educational Directorate, Ministry of Education for the year 1999. The CDR covers 19 districts that lie in different ecological zones, such as: mountain, hill and terai (plain). The

enrollment data was forwarded to the Office of Smoking and Health (OSH), Center of Diseases Control (CDC) to draw up study sample for survey under Phase I. Fifty schools out of 1,035 schools in the CDR were selected for the survey. All schools containing standards 8 through 10 that contained 40 or more students were included in the sampling frame.

School level: The first stage-sampling frame consisted of all public and private schools containing of any grades 8 through 10. Schools were selected with probability proportional to school enrollment size.

Class level: The second sampling stage consisted of systematic equal probability sampling (with a random start) of classes from each school that participated in the survey. All second period classes in the selected schools were included in the sampling frame. All students in the selected classes were eligible to participate in the survey.

4.2. Development of questionnaire

Prior to developing our questionnaire, Hindi version of the questionnaire already used by the neighboring country India was reviewed. The questionnaire was developed under the guidance of WHO and CDC, which comprised core component that provided similar data for the comparison between countries and regions and a set of optional component that provided data to analyze the special issues relevant to the Nepalese situation. Prior approval was taken from CDC and WHO. The approved questionnaire was translated into Nepali language with the help of experts and then pre-tested.

A weighting factor was applied to each questionnaire to reflect the likelihood of sampling each student and reduce bias by compensating for different patterns of non-response.

The weight used for estimation is given by:

$$W = W1 * W2 * f1 * f2 * f3 * f4$$

W1 = the inverse of the probability of selecting the school

W2 = the inverse of the probability of selecting the classroom within the school

f1= a school-level non-response adjustment factor calculated by school size category (small, medium, large)

f2 = a class adjustment factor calculated by school

f3 = a student-level non-response adjustment factor calculated by class

f4 = a post stratification adjustment factor calculated by gender and grade

5. Data Collection and analysis:

Printed questionnaires both in Nepali and English along with School ID forms and Class level ID forms were made available to the data enumerators or surveyors. A letter was sent to all selected schools for their consent to undertake the survey. The purpose of the survey was discussed with the school authorities and the classes were selected as per school level form. After selection of class, the anonymous self-administered questionnaire was administered with due explanation of the nature and the intent of the survey. The teachers and school personnel were not present during administration of the questionnaire to encourage the students to provide their own answer without any biases. The survey was carried out from April to September 2001.

The answer sheet was sent to CDC/OSH where data was entered and analysis was done using Epi Info 2000, a software package, that accounted for the complex sampling design and weighing factors in the data set, to calculate standard errors and prevalence estimates. The statistical differences included in this report were determined by comparing the range of the 95% confidence interval (95%CI) for the estimates. If the ranges for the 95% CI did not overlap then the difference were statistically significant. The weighted results were used to make important inferences concerning tobacco use risk behaviors of students in eighth, ninth and tenth grades. The following response rate was obtained in the study:

Schools: 98% 49 of the 50 sampled schools participated.

Students: 86% 2,307 of the 2,687 sampled students completed usable questionnaires

Overall response rate: 98% *85.86% = 84.14%

6. Results:

Table 1: Percent of students who use tobacco, Nepal GYTS, 2000

Category	Ever Used Tobacco in any form even once	Current Use					
		Any tobacco Product	Any Smoked Product	Smokeless Products	Cigarette	bidi	Gutkha/ Pan masala
Total	16.3 (±4.2)	11.6 (±3.1)	7.2 (±2.6)	9.3 (±2.5)	4.1 (±1.4)	2.0 (±0.8)	6.6 (±2.0)
Sex							
Male	22.5 (±4.7)	15.3 (±3.7)	9.9 (±3.2)	11.8 (±2.8)	6.3 (±2.2)	2.8 (±1.3)	9.0 (±2.5)
Female	7.9 (±4.4)	6.4 (±3.6)	3.2 (±2.8)	5.6 (±3.5)	0.6 (±0.4)	0.6 (±0.6)	2.9 (±2.1)

Overall 16.3 percent of the student ever used tobacco product in any form (table 1), the boys were significantly higher than girls. Percentage, of current users of any form of tobacco product is 11.6 percent, however the rate in the boys was significantly higher (15.3%) as compared to girls (6.4%). Use of smokeless tobacco product was slightly greater than use of smoking product but the difference is insignificant. The overall percentage of cigarette smokers was 4.1, boys 6.3 % and girls 0.6 %, the difference is statistically significant.

Table 2: School Curriculum, Nepal GYTS, 2000

Category	Percent taught dangers of smoking or chewing tobacco	Percent discussed reasons why people their age smoke or chew	Percent taught the effects of tobacco use in class	Percent discussed tobacco and health as part of a lesson in class
Total	77.7 (± 4.0)	55.0 (±3.8)	74.4 (±3.0)	74.3 (±3.5)
Sex				
Male	74.5 (±4.9)	50.1 (±4.3)	69.8 (±4.2)	69.9 (±4.2)
Female	82.2 (±3.7)	61.5 (±4.8)	80.4 (±3.2)	80.5 (±3.8)

About three fourth (77.7%) of the students were taught about the danger of smoking, its effect and discussed tobacco and health as a part of lesson in the class (Table 2). About half of them (55%) also discussed reasons why people of their age smoke or chew which is significantly different between the boys (50.1%) and girls (61.5 %).

Table 3: Cessation, Nepal GYTS, 2000

Category	Current Smokers	
	Percent desire to stop	Percent tried to stop this year
Total	76.8 (±12.4)	77.7 (±10.1)
Sex		
Male	83.7 (±8.6)	79.7 (±9.6)
Female	*	*

* = <35 cases in the denominator

More than three fourth (76.8%) of the current smokers expressed their desire and also made an attempt (77.7%) to stop tobacco use (Table3).

Table 4: Environmental Tobacco Smoke, Nepal GYTS, 2000

Category	Exposed to smoke from others in their home in the past 7 days		Exposed to smoke from others outside their home in the past 7 days		Percent who think smoking should be banned from public places		Percent who definitely think smoke from others is harmful to them	
	Never Smoker	Current Smoker	Never Smoker	Current Smoker	Never Smoker	Current Smoker	Never Smoker	Current Smoker
Total	35.8 (±2.9)	53.6 (±10.0)	44.7 (±3.9)	63.8 (±10.6)	72.9 (±4.1)	59.7 (±7.9)	77.6 (±4.0)	48.4 (±16.3)
Sex								
Male	39.1 (±3.6)	60.3 (±10.1)	50.2 (±4.5)	71.5 (±9.4)	75.4 (±3.3)	62.3 (±9.3)	76.0 (±5.1)	53.3 (±13.2)
Female	31.5 (±4.2)	*	38.1 (±5.6)	*	69.7 (±6.1)	*	79.6 (±3.6)	*

* = <35 cases in the denominator

A little more than one third (35.8%) of those who never smoked were exposed to smoke from others in their home in the past 7 days where as half (53.6%) of current smokers were exposed to it (table 4). A substantial proportion of non-smoker (44.7) and current smoker (63.8%) were exposed to tobacco smoke from others outside their home in the paste 7 days. Boys who never smoked were significantly highly exposed to secondhand smoke than girls.

Three fourth (77.6%) of the never smokers and nearly half (48.4%) of the current smokers think that smoking from others is definitely harmful to their health and 72.9% and 59.7 % think that the smoking should be banned from public places.

Table 5a: Knowledge and Attitudes, Nepal GYTS, 2002

Cat .	Think boys who smoke have more friends			Think girls who smoke have more friends			Think boys who chew have more friends			Think girls who chew have more friends		
	Never user of tobacco	Current Smoker	Current Smokeless	Never user of tobacco	Current Smoker	Current Smokeless	Never user of tobacco	Current Smoker	Current Smokeless	Never user of tobacco	Current Smoker	Current Smokeless
Total	35.3 (±4.4)	48.3 (±8.8)	44.1 (±7.6)	22.4 (±3.6)	32.6 (±6.8)	30.3 (±6.8)	33.1 (±4.2)	38.9 (±9.2)	35.9 (±7.8)	20.5 (±3.2)	33.8 (±7.5)	30.4 (±6.7)
Sex												
Male	35.4 (±4.0)	53.6 (±9.2)	47.2 (±9.3)	26.1 (±4.4)	31.6 (±6.6)	30.9 (±7.4)	33.0 (±4.0)	41.2 (±9.8)	37.7 (±7.4)	22.4 (±4.5)	31.1 (±8.7)	30.5 (±8.7)
Female	34.8 (±6.3)	*	*	18.2 (±4.6)	*	*	33.1 (±6.2)	*	*	18.3 (±3.7)	*	*

* = <35 cases in the denominator

More than one third (35.3%) never users and almost half (48.3%) of current smoker think boys who smoke have more friends (Table 5a). Similarly one fifth (22.4%) of never users and one-third (32.6%) of current smokers think girls who smoke have more friends.

Think smoking makes boys look more attractive			Think smoking makes girls look more attractive		
Never user of tobacco	Current Smoker	Current Smokeless	Never user of tobacco	Current Smoker	Current Smokeless
25.6 (±4.6)	31.2 (±9.4)	31.0 (±8.8)	15.5 (2.8)	24.3 (±6.7)	20.0 (±6.8)
26.0 (±5.0)	32.6 (±9.4)	32.0 (±8.7)	19.7 (3.3)	25.0 (±8.6)	22.7 (±8.3)
24.6 (±5.3)	*	26.9 (±14.2)	11.0 (2.8)	*	13.7 (±8.7)

Table 5b: Knowledge and Attitudes, Nepal GYTS, 2002

* = <35 cases in the denominator

One quarter (25.6%) of never users of tobacco and nearly one third (31.2%) of current smokers and users of smokeless tobacco think that smoking makes boys look more attractive (Table 5b). Consistently, lower proportion i.e. 22.9%, 24.3%, and 20% of them think that smoking makes girl look more attractive however the values are not significant. But higher proportions of boys who currently chew tobacco (22.7%) think that smoker girls look more attractive where as only (13.7%) girls think so. The difference is significant.

Table 6a: Media and Advertising – Nepal GYTS, 2000

Category	Percent offered a free cigarette or bidi or khaini or guta or pan masala by a tobacco company				
	Never Tobacco User	Current Smoker	Current Cig. Smoker	Current Bidi	Current Smokeless
Total	1.8 (±2.9)	30.0 (±11.4)	21.5 (±10.3)	21.9 (±13.6)	25.7 (±11.5)
Sex					
Male	4.9 (±3.9)	26.2 (±8.4)	23.2 (±10.7)	24.3 (±14.8)	25.6 (±8.7)
Female	0.1 (±3.2)	*	*	*	24.4 (±29.5)

* = <35 cases in the denominator

Nearly one-third (30%) of current smokers have ever received free offer of cigarette or bidi or khaini gutka or panmasala from tobacco agents (Table 6a). Tobacco users were significantly more likely to get free gifts. Out of non-users of tobacco products, the boys were more likely to get free offers (14.9%) as compared to the girls (8.1%), however the difference is not significant.

Table 6b: Media and Advertising – Nepal GYTS, 2000

Seen a lot of advertisement and media messages about cigarettes bidi or khaini or guta or pan masala on:							
TV		Print Media		Newspapers/Magazines		Social gatherings	
Never Tobacco User	Current Smoker	Never Tobacco User	Current Smoker	Never Tobacco User	Current Smoker	Never Tobacco User	Current Smoker
35.4 (±3.8)	45.1 (±9.0)	44.0 (±3.5)	51.2 (±7.8)	41.0 (±3.7)	51.3 (±8.4)	37.9 (±3.5)	45.8 (±12.5)
34.4 (±6.0)	42.5 (±10.2)	45.7 (±4.5)	51.0 (±8.6)	41.7 (±4.7)	48.5 (±8.1)	36.8 (±3.9)	43.2 (±11.5)
36.4 (±5.5)	*	42.3 (±4.6)	*	40.1 (±4.4)	*	38.9 (±5.4)	*

* = <35 cases in the denominator

More than one-third (35.4%, 44.0%, 41.0% and 37.9%) of never tobacco users were exposed to tobacco advertisement on TV, print media, newspaper/magazine and social gatherings, respectively (Table 6b). Half of the current smokers were exposed to these pro-tobacco media advertisements i.e. 45.1%, 51.2%, 51.3% and 45.8% respectively. Non-tobacco user boys and girls were almost equally exposed to it, however the gender difference of exposure to pro-tobacco media by the current smokers could not be determined due to the small sample size in these strata. Further study is needed.

Table7: Access and Availability, Nepal GYTS, 2000

Category	Percent of Current Smokers who Usually Smoke at Home	Percent of Current Smokeless tobacco users who chew/apply tobacco at home	Percent of Current tobacco users who Purchased tobacco products in a Store	Percent of Current tobacco users who Bought tobacco in a Store Who Were Not Refused purchase Because of Their Age
Total	8.2 (±5.3)	15.1 (±6.9)	51.3 (±8.1)	75.0 (±12.5)
Sex				
Male	7.6 (±5.1)	10.5 (±5.9)	57.0 (±7.6)	76.1 (±11.7)
Female	*	*	26.3 (±18.5)	*

* Cells having less than 35 in the denominator

Approximately one in ten (8.2%) of the current smoker students usually smoke at home where as nearly one in six (15.1%) of them are using smokeless tobacco at home (Table 7). More than half (51.3%) of the current tobacco users purchased tobacco products in a store and 75% of them were not refused purchase because of their age. Girls were less likely to purchase tobacco products in a store (57.0% vs. 26.3%), the difference is significant.

7. Discussion

The prevalence including attitudinal and behavioral aspects of tobacco smoking habit has been studied in a limited way in some countries^{2,3} including Nepal in the past but no uniform and standardized criteria have been used to make the results strictly comparable. The GYTS is unique in the sense that this is done uniformly and using rigorous methodology in a global context. This has already given some valuable data to plan effective tobacco control program. It is a well-known fact that tobacco smoking starts in the young and the industry is targeting this age group all over the world to hook them with nicotine addiction. So, we have to take this problem very seriously and plan an anti-tobacco program with special focus on youth. From our findings of Nepal survey we would like to comment on the followings:

Tobacco use: The rate of use of tobacco use in young is still not that high as compared to some areas of some of the developing countries. The current smoking rate for girls is significantly lower than that of the boys. This should not lead to any compliancy, as the industry is specially focusing on young girls for their promotional activities all over the world. As a result although the smoking rate in most developed countries are coming down, the rate in young girls in some of them have started increasing. So, we should give special attention to female young smokers to see that the rate do not rise with the ultimate objective being, to bring the rate down to zero.

School curriculum: The data shows that the students are taught about the dangers and harmful effects of tobacco use and they are also discussing tobacco and health as part of lessons in their classes. This is encouraging. It will be wise to focus on the quality of this teaching and improve it to have the maximum effect from such a large response.

Cessation: Three fourth of the students who smoke have expressed their desire to stop and also have made an attempt to stop. So, there is an urgent need for youth oriented counseling services and smoking cessation program to help them to quit smoking.

Environmental tobacco smoke (ETS): A little more than one-third of never smokers and a little more than half of current smokers are exposed to passive smoking in their homes. A substantial proportion (44.7%) of non-smokers and 63.8% of current smokers were exposed to environmental tobacco smoke outside their home. Large majorities, especially of the non-smokers realize that the tobacco smoke is harmful to them and think that it should be banned.

It has been well documented that passive smoking can lead to cancer and recent data have shown that it also increases the risk of coronary artery diseases by as much as 25%¹⁰. So there is a urgent need to advocate for legislation to ban tobacco smoking in public places especially as there is such a large demand from the young boys and girls as well.

Knowledge and attitude: Quite a large number of boys, current smokers (48.3%) think that smokers have more friends. There is a similar feeling in the girls, current smokers but to a lesser extent (32.6%). Similarly, almost one third of boys and almost one fourth of the girls think that smoking makes them more attractive. Such a mis-leading image might have been created due to the promotional activities by the industry and this should be a matter of great concern and needs urgent intervention.

Media and Advertising: The data reveals that more than one-third of never tobacco users and half of the current smokers are exposed to tobacco promotional advertisements in TV, print media, newspaper, magazine and social gatherings. These advertisements are sponsored by the tobacco industry, as they know that the young people are very vulnerable and if they can be hooked at this susceptible age they can be the potential markets for decades. The aggressive advertisement policy of tobacco Industries is unveiled by the fact that they are spending more than Rs. 155 million for tobacco advertisement in a year in Nepal³.

So, immediate legislative action should be taken to ban tobacco advertisement. The legislation should be comprehensive enough to include sponsorship of popular events like sports and other indirect form of ads. In Nepal, the dedicated levy on tobacco (health tax) and use of part of that money to ban tobacco and to

give anti-tobacco messages in electronic media is commendable but to be fully effective this should be extended to print media, billboard and other forms of advertisements and promotion. The offer of free tobacco to as much as 30% of current smokers reveals the aggressive promotional activities of the industry. This contradicts the mis-leading claims made by them that they want to protect the youth from smoking.

Access and availability: Almost one in ten current smoker students are usually smoking at home. This shows the need for parental pressure to stop this tendency. To make such pressure more effective, parents themselves should stop smoking and it has been already realized that the concern for the children's health can be a motivating factor for the parents to stop smoking.

More than half of the current tobacco users purchased the products in the store and three fourth of them were not refused purchase in spite of their young age. So, there is an urgent need for legislation to ban sales of tobacco product to young people and effective implementation of the same.

8. Limitations

This is an important study as it has been done by using globally standardized methodology but as it has been done only in the central development region (CDR) of Nepal, it should not be inferred to represent the whole country.

With due consideration to the cost, required precision and objective of the GYTS, a minimum sample size was taken which was not enough for all kinds of sub-group analysis and statistical tests.

The purpose of the study is to conduct the survey of school going adolescents. In Nepal, more than half of the adolescents do not go to school. A study done by us in small area of a rural community of Nepal has shown a decreasing trend of tobacco smoking rate and development of favorable attitude with increasing educational status in both the sexes^{2,3}. As the present study represent the school going adolescents, it does not represent the true prevalence in the community as a whole.

9. Conclusions

1. Starting smoking at a relatively young age increases the risk of addiction to tobacco smoking. Tobacco industries are targeting youth to hook them to tobacco addiction so as to assure their future markets. There is increasing resistance to advertisement in the developed world but the young adolescents in the developing countries are more vulnerable to the multitude of advertising technique addressing to almost every walks of their life. 44% of never tobacco users and 51.2% of current tobacco users were exposed to tobacco advertisement on print media (Table 6b). Similar proportions of students were also exposed to pro-tobacco advertisements through TV,

newspaper/magazine, social gatherings etc. Nearly one-third (30%) current smokers received free gifts. Although, the tobacco users were more likely to get free gifts, 14.9% non-users also received such gifts. This unveils the fact that the tobacco industries are targeting the youths as against their claim that they don't want the children and adolescents to smoke. Both public and private media and sports and other social activities are vulnerable to tactful tobacco advertisement strategies based on the economic strength and technical know how of the industry. The ban on tobacco advertisement through electronic media is a bold and positive step by the government of Nepal. However, there has to be a total ban on tobacco advertisement including sponsorships. For this purpose, political commitment, promulgation and enactment of anti-tobacco legislation at national level and strong FCTC at global level is essential.

2. The prevalence of tobacco use among school students in the CDR, Nepal, is high. Overall 16.3% of the students ever used tobacco product in any form (table 1). Percentage, of current users of any form of tobacco product was 11.6%; the rate in the boys was significantly higher (15.3%) as compared to the girls (6.4%). The overall percentage of cigarette smoking was 4.1%. Many people begin smoking as children and adolescents, at early age when they lack the knowledge and ability to make sound decisions. Majority, (77.7%) of the students were taught about the dangers of smoking, its effect as a part of lesson in the class (Table 2). Perhaps, as a consequence, a vast majority (76.8%) of the current smokers expressed their desire and also made an attempt (77.7%) to stop tobacco use (Table3) but without success. There is a need of tobacco cessation intervention program specially designed to the adolescents in schools along with more detailed anti-tobacco classes to them.
3. A substantial proportion of non-smokers (44.7%) and current smokers (63.8%) were exposed to tobacco smoke from others outside their home in the past 7 days (Table 4). Boys were significantly highly exposed to secondhand smoke than girls. 72.9% never smokers and 59.7 % current smokers think that smoking should be banned from public places This indicates the urgency of anti-tobacco act and strict enforcement of it to ban smoking in public places so as to safeguard the right to breathe smoke-free air. Similarly, the findings also suggest that the school students have great access to tobacco products. More than half (51.3%) current tobacco users purchased tobacco products in a store and 75% of them were not refused purchase because of their age. As such law should also prohibit the sale of tobacco products to the minors.
4. The existence of wrong perception of school students about their smoking was also evident from the findings. More than one third (35.4%) never users and almost half (48.3%) current smokers think boys who smoke have more friends (Table 5a). Similarly one fifth (22.4%) of never users and one-third (32.6%) of current smokers think girls who smoke have more friends. About a similar proportion of students also think that smoking makes them more attractive. Since adolescents are likely to pay attention to immediate concern, this value attached to smoking is far more detrimental to their future health. There is a need for awareness program stressing short-term and long-term effects of tobacco use including premature aging, impotency, bad breath, ugly appearance etc.

10. Recommendations

1. The adolescents were exposed to pro-tobacco advertisement and many of them received free gifts. The ban on tobacco advertisement through electronic media is a positive step taken by the government of Nepal. However, there has to be a total ban on tobacco advertisement and sponsorship. To achieve this political commitment and enactment and effective enforcement of anti-tobacco legislation at national level and strong FCTC at global level is essential.
2. Three fourth of the students expressed their desire to stop smoking and also had made attempts to do so without success. So, the focus in the youth should not only be on prevention but also on youth oriented smoking cessation programs to help them to quit smoking.
3. A substantial number of students were exposed to tobacco smoke at home and public places and almost three fourth of the non-smokers demanded that the tobacco smoking in public places should be banned. So, there is a need for strong anti-tobacco legislation and strict implementation of the legislation to ban tobacco smoking in public places.
4. More than half of the current tobacco users purchased the products in the store and three fourth of them were not refused purchase in spite of their young age. So, the tobacco control law should also prohibit the sale of tobacco products to the minors.

11. Acknowledgements

We would like to thank the Centers for Disease Control and Prevention/Office of Smoking and Health (CDC/OSH), USA for training, sample selection, data entry and analysis. W.H.O. for giving importance to GYTS in the TFI program and Dr. PC Gupta for providing Hindi version of the questionnaire at the outset of the study. Dr. Charles W Warren is acknowledged for his review and comments on the initial report.

Janak Memorial Service Centre is acknowledged for their assistance in collecting and compiling the list of secondary schools and enrollment data and survey administration under the aegis of Mrigendra Samjahana Medical Trust (MSMT).

12. References

1. Pandey MR, Basnyat B, and Neupane RP; Chronic Bronchitis & Cor Pulmonale in Nepal. A Scientific epidemiological Study. Mrigendra Samjhana Medical Trust, Kathmandu, 1988
2. Pandey MR, Venkatramaiah SR, Neupane RP and Gautam A; 'Epidemiological Study of tobacco Smoking Behaviour among Young People in Rural Community of the Hill Region of Nepal with Special Reference to Attitude and Beliefs. Com. Med. Vol9, No2, pp 110-120; Oxford University Press, 1987.
3. Pande BR, Karki YB and Pant KD, A Study on Tobacco Economics in Nepal, WHO/SEARO, 2001
4. Acharya G.P. et al, 2001, 'Tobacco use among school children of Bhanubhakta Memorial Higher Secondary School'; Kathmandu, NHRC. (Unpublished)
5. Warren CW, Riley L, Asma S, et al. Tobacco use by Youth: a surveillance report from the Global Youth Tobacco Survey Project, Bull WHO 2000; 78:868-76 [Medline].
6. Warren CW, Tobacco use among youth: a cross-country comparisons; BMJ – PG sponsored: TC 2002; 252-270.
7. Pandey MR, Shrestha NK, Upadhaya AB, and Neupane RP, Prevalence of Chronic Bronchitis in a Rural Community of the Hill region of Nepal. Thorax, May 1984; 39:331-336.
8. Pandey MR, Sharma PR, Neupane RP, Gautam A; Parental Tobacco Smoking and Acute Respiratory Infections (ARI) in Nepal; Inst. Med. 1991, 13,227-238
9. Pandey MR and Ghimire M; Prevalence of various types of heart diseases in Kathmandu. *J. Nep. Med. Ass.* 1975, 13, 37-46.
10. PW Gunasekhara, Report on the Results of the Global Youth Tobacco Survey in Srilanka, 1999.
11. Pandey MR, Neupane RP and Gautam A; Epidemiological study of Tobacco Smoking Behavior among Adults in a Rural Community of the Hill Region of Nepal with Special Reference to Attitude and Beliefs, International Journal of Epidemiology, vol. 17, No 3, 1988.
12. Pandey MR, Tobacco Smoking in Nepal – Some Recent Success; Tobacco and Health, Plenum Press, NY, 1995, pp 267-272
13. World Health Organization: Tobacco or Health; A global status report, Geneva; WHO, 1997.
14. Dr. Mahmoud Fikri, Bassam H.Abi Saab; 2002 Global Youth Tobacco Survey (GYTS): United Arab Emirates Report; The Central Health Education Department, Preventive Medicine Sector, MoH, 2002
15. Center for Disease Control and Prevention, Global Youth Tobacco Survey. Available at: <http://www.cdc.gov/tobacco/global/GYTS-intro-htm>, Accessed Dec. 30, 2002

16. Jha N. and Subba B; 'Prevalence of tobacco use among college students of Dharan, Eastern Nepal'; Nepal J of Science and Technology, Kathmandu, July, 2002.
17. Prevention and control of tobacco smoking and management of childhood pneumonia in Jumla – an intervention study, Evaluation report, Mrigendra Samjhana Medical Trust, 1999. (Unpublished)